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How AI Can Reveal Corporate Tax Avoidance

By applying natural language processing to annual reports, researchers found clues to corporate tax avoidance strategies.



Texas McCombs · Follow

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Based on the research of Lillian Mills



Are the words used in annual reports a key to unlocking the secrets of corporate tax avoidance?



When it comes to spotting corporate tax dodgers, words can be as useful as numbers. Recent research from Texas McCombs finds that careful reading of text can offer new insights into how companies are trying to avoid taxes — activities that may not be apparent from financial numbers alone.

Dean and Accounting Professor Lillian Mills and her co-author, Kelvin Law of Nanyang Technological University, examined 18 years' worth of U.S. multinational companies' annual reports, ones that discussed their business activities in foreign countries, including tax havens. The researchers covered a total of 183,061 reports.

The team used natural language processing (NLP) to analyze the text and identify patterns and word choices that might reveal what kind of activities companies were conducting in tax havens. The computer analysis uncovered clues about these activities.

For example, suppose a U.S. pharmaceutical company has developed a successful drug for treating heart disease, generating a high profit margin. The company owns intellectual property (IP) for the specific formula of the drug and indicates it has “established a subsidiary in Panama to handle manufacturing and production,” using the patented formula. By routing profits from the sale of the heart disease drug through the use of IP in a country known for low tax rates, the company is able to pay lower taxes through the subsidiary in the tax haven.

The word “manufacturing” is one of about 80 words the computer looks for to suggest operations that might be avoiding taxes. Others include “purchasing,” “importing,” “warehouses,” and “distributors.”

Although there is no sure way to detect all instances of tax avoidance, Mills says, close attention to word choices in an annual report can reveal several kinds of insights that numbers might not:

New metrics. A new set of measures in the study assesses not only whether a company has a subsidiary in a tax haven country, but whether it's an active subsidiary. The new measures are three times as effective as existing ones for predicting that a company is avoiding taxes.

Undisclosed operations. Machine learning techniques can identify companies that may have tax haven operations but do not disclose them in annual reports.

Higher tax avoidance. Nondisclosers flagged by machine learning have lower effective tax rates than other companies.

“Using AI to analyze text data could be a powerful tool for both regulators and investors to detect corporate tax avoidance,” Mills says.

“That information could especially help regulators other than the IRS, who don’t have access to companies’ tax returns. It could guide them in looking at publicly available data to find companies that might be using abusive profit-shifting strategies in tax havens.”

“Taxes and Haven Activities: Evidence from Linguistic Cues” is published in The Accounting Review.

For more McCombs research on taxes and foreign earnings, read *“The Big Shift: More Corporate Cash Flows into the U.S. than Out.”*

Story by Kelvin Law

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